

Remarks

The above Amendments and these Remarks are in reply to the Office Action mailed August 11, 2004. The fee for the addition of new claims is included herewith.

Claims 1-86 were pending in the Application prior to the outstanding Office Action. In the Office Action, the Claims 1-86 were rejected. In the present response, the Applicant has cancelled claims 30-32, 38, 44, 48, 50, 75 and 76. Additionally, the Applicant has amended claims 1, 2, 6, 7, 10, 13, 24, 25, 27, 33-35, 39-43, 45, 49, 51, 52, 54, 57, 58, 62, 64, 67-69, and 82-86. Further, the Applicant has added new claims 87-98. Accordingly, Claims 1-29, 33-37, 39-43, 45-47, 49, 51-74, and 77-98 are currently pending. The Applicant respectfully requests reconsideration.

Rejections Under 35 USC 102

Within the Office Action, Claims 1, 2, 4, 7, 8, 10, 13, 16-32, 35-52 and 55-82 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,401,269 to Buttner-Janz et al. (hereinafter Janz). The Applicant respectfully disagrees.

The present invention is directed to an artificial vertebral disk replacement implant having a top plate 110 and a bottom plate 120 and a spacer 130 (Figure 3A), whereby the spacer allows the top plate 110 and bottom plate 120 to rotate about their respective axes. The top plate 110 includes a cavity 210 which has a curved, concave surface 211 that extends between sides 237 and 239, as shown in Figure 2A. The bottom plate 120 includes a cavity 240 which has a curved, concave surface 241 that extends between the side 245 and its opposing side (not numbered), as shown in Figure 2B. As shown in the Figures, the concave surface 211 and the concave surface 241 are oriented substantially perpendicular to each other. The spacer (Figure 3A) has an upper curved surface 310 and a bottom curved surface 320 which mate with the upper cavity 210 and the lower cavity 240, respectively. As shown in Figure 3A, the upper curved surface 310 of the spacer 130 extends from end 321 to end 323. Additionally, the lower curved surface 320 of the spacer 130 extends from end 325 to the 327. Thus, the upper surface 310 of the spacer 310 is oriented substantially perpendicular to the lower surface 320. This particular configuration, in one embodiment, allows the top plate 110 to move along the upper curved surface (i.e. between ends 321 and 323) and allows the bottom plate 120 to move along the lower curved surface (i.e.

between ends 325 and 327). Thus, in one embodiment, the top plate 110 accommodates flexion and extension movements. Additionally, each cavity in the top and bottom plates includes side walls which restrict the motion of the plates to their intended movement as discussed above. The shape of the spacer is also non-symmetrical through a medial plane, which is oriented to extend between the side 312 and the side 314 in Figure 3B.

In contrast, Janz teaches an intervertebral disc endoprosthesis which includes a top plate and a bottom plate with a prosthesis core therebetween. The core in Janz is shown and described to have a circular configuration, whereby the core has a radius of curvature in the sagittal section that is different than the radius of curvature in the frontal section. Nonetheless, the core exhibits a circular or oval shape, whereby the core is symmetrical through the medial plane, which is the plane perpendicular to the axis of symmetry 9 in Figure 1 of Janz. Thus, the core allows the top and bottom plate to be able to move in the same direction with respect to the core. There is no teaching in Janz of a spacer which has the configuration of the spacer of the present invention which limits the movement of the top plate in one direction and the bottom plate in a substantially perpendicular direction. In addition, there is no teaching in Janz that the top and bottom end plates are configured to allow the present spacer to operate effectively within the Janz implant. Instead, the articular surfaces in the top and bottom plates of the Janz device have the same shape and configuration to allow the top and bottom plates to move in the same directions with respect to the core. Accordingly, the Janz device is distinguishable from the present invention.

In particular, amended Independent Claim 1 recites, among other things, that the first curved surface of the third part is provided substantially perpendicular to the second curved surface. As stated above, the core in Janz is circular or oval shaped and is symmetrical about the medial plane of the core. Thus, Janz does not teach that the core has the upper curved surface that is substantially perpendicular to the lower curved surface. Accordingly, amended Claim 1 is distinguishable over Janz.

Claims 2, 4, 77 and 78 have also been rejected as being anticipated by Janz. However, Claims 2, 4, 77 and 78 are dependent on Claim 1. As stated above, Claim 1 is distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 2, 4, 77 and 78 are thus also allowable for being dependent on an allowable base claim.

Regarding amended Independent Claim 7, Claim 7 recites, among other things, that the third part has a first convex surface that is configured to limit movement of the first part between a first and second direction. Additionally, Claim 7 recites that the second convex surface of the third part is configured to limit movement of the second part between a third and fourth direction, whereby the first and second convex surfaces are substantially perpendicular to one another. These limitations are not taught in Janz for the reasons stated above. Accordingly, amended Claim 7 is distinguishable over Janz.

Claims 8, 10, 79 and 80 have also been rejected as being anticipated by Janz. However, Claims 8, 10, 79 and 80 are dependent on Claim 7. As stated above, Claim 7 is distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 8, 10, 79 and 80 are thus also allowable for being dependent on an allowable base claim.

Regarding amended Independent Claim 13, Claim 13 recites, among other things, that the first and second plates have curved interior surfaces which are oriented substantially perpendicular to one another. Additionally, Claim 13 recites that the first and second sides of the spacer fits adjacent to the curved shapes of the first and second interior surfaces, respectively. These limitations are not taught in Janz for the reasons stated above. Accordingly, Claim 13 is distinguishable over Janz.

Claims 16-31, 81 and 82 have also been rejected as being anticipated by Janz. However, Claims 16-29, 81 and 82 are dependent on Claim 13. Claims 30 and 31 have been cancelled by the Applicant. As stated above, Claim 13 is distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 16-29, 81 and 82 are thus also allowable for being dependent on an allowable base claim.

Regarding Independent Claim 32, Claim 32 has been cancelled. Therefore, the rejection to Claim 32 is now moot. Regarding, dependent Claims 35-37, 39-43, 45-47, 49, and 51, these claims have also been rejected as being anticipated by Janz. However, Claims 35-37, 39-43, 45-47, 49, and 51 are dependent on new independent Claim 87. New independent Claim 87 is distinguishable over the teachings of Janz for at least the reasons stated above and is therefore allowable. Accordingly, Claims 35-37, 39-43, 45-47, 49, and 51 are thus also allowable for being dependent on an allowable base claim.

Regarding Independent Claim 52, Claim 52 recites, among other things, that the first convex side of the spacer limits movement for the first plate to flexion and extension. Additionally, the second convex

side of the spacer limits movement of the second plate to accommodate lateral bending. These limitations are not taught in Janz for the reasons stated above. Accordingly, amended Claim 52 is distinguishable over Janz.

Claims 55-63 have also been rejected as being anticipated by Janz. However, Claims 55-63 are dependent on Claim 52. As stated above, Claim 52 is distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 55-63 are thus also allowable for being dependent on an allowable base claim.

Regarding Independent Claim 64, Claim 64 recites, among other things, that the spacer is non-symmetrical along the medial plane between the first and second plates. As stated above, the core in Janz is symmetrical about the medial plane, which is not taught in Claim 64. Accordingly, Claim 64 is distinguishable over Janz.

Claims 65-71 have also been rejected as being anticipated by Janz. However, Claims 65-71 are dependent on Claim 64. As stated above, Claim 64 is distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 65-71 are thus also allowable for being dependent on an allowable base claim.

Regarding independent Claim 72, Claim 72 recites, among other things, that the spacer and the first and second plates have curved interior surfaces which are oriented substantially perpendicular to one another. Additionally, Claim 72 recites that the first and second sides of the spacer fits adjacent to the curved shapes of the first and second interior surfaces, respectively. These limitations are not taught in Janz for the reasons stated above. Accordingly, Claim 72 is distinguishable over Janz.

Claims 73 and 74 have also been rejected as being anticipated by Janz. However, Claims 73 and 74 are dependent on Claim 72. As stated above, Claim 72 is distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 73 and 74 are thus also allowable for being dependent on an allowable base claim.

Rejection Under 35 USC 103

Within the Office Action, Claims 3, 5, 6, 9, 11, 12, 14, 15, 33, 34, 53 and 54 were rejected under 35 U.S.C. 103(a) as being unpatentable over Janz in view of U.S. Patent Application Pub. No.

2003/0208273 to Eisermann et al. (hereinafter Eisermann). Additionally, Claim 83-86 were rejected under 35 U.S.C. 103(a) as being unpatentable over Janz in view of U.S. Patent Application Pub. No. 2002/0128715 to Bryan et al. (hereinafter Bryan). The Applicant respectfully disagrees.

Claims 3, 5, 6 and 83 are dependent on independent Claim 1. Claims 9, 11, 12 and 84 are dependent on independent Claim 7. Claims 14, 15 and 85 are dependent on independent Claim 13. Claims 33, 34 and 86 are dependent on independent Claim 87. Claims 53 and 54 are dependent on independent Claim 52. As stated above, Claim 1, 7, 13, 52 and 87 are distinguishable over the teachings of Janz and is therefore allowable. Accordingly, Claims 3, 5, 6, 9, 11, 12, 14, 15, 33, 34, 53, 54 and 83-86 are thus also allowable for being dependent on an allowable base claim.

New Claims

The Applicant has added new claims 87-98. The Applicant submits that the new claims are fully supported by the present specification and are allowable over the prior art. The Applicant respectfully requests consideration of new claims 87-98.

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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